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The illustration this month represents two rare Hesperids, which were described in Vol. I, p. 23, of ENTOMOLOGICAL NEWS. Owing to circumstances the figures could not be given sooner. The plate represents the so called half-tone process of photo-engraving invented by Mr. Ives, of this city. The plate was made by the Crosscup & West Company of 911 Filbert Street, Philadelphia. In previous issues we have presented a number of plates made by the Crosscup & West Company, and it can be readily seen how well adapted the method is for illustrating objects in this branch of natural history. Perhaps the greatest advantage of the method is its comparative cheapness. The older plan of lithography is an excellent one, but it is a luxury that can only be enjoyed by the wealthy, as it necessitates the employment of an artist to make the drawings, and a lithographer to do the lithographic work and printing, all of which are expensive. A plate by the Ives process can be made from a good photographic print of the object, but it is best to have it made from the negative when possible. If the photograph is made on one of the new orthochromatic dry plates, the true color values of the object will be obtained. One of the great drawbacks to the study

of Entomology in this country is the paucity of illustrations. Now that good mechanical processes of illustration are a success, we hope to see tiresome descriptions supplemented by good illustrations. Pl. IV, Vol. II, was made by the Crosscup & West Company from an ordinary negative (not orthochromatic), and the species are readily recognized. This plate would have cost at least five times as much by lithography. There will, undoubtedly, be improvements made in this line, and we look forward to a great future for Entomology illustrated.

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NEW LEPIDOPTERA.

By A. G. WEEKS, JR., Boston.

Hypolycæna festata n. sp.

Hab.—Lower California (San José del Cabo). Expanse, ♂ and ♀, 1.00 to 1.10 inches.

Male.—Front and summit of head covered with light gray, nearly white hairs, deepening in shade as they approach thorax. Antennæ blackish, with white annulations at the base of each joint; club blackish brown, tipped with orange at base, the white extends nearly half way to apex. Thorax above presents generally the same color as wings, and is covered with grayish hairs; beneath it is almost pure white. Legs covered with white hairs, shading into gray at ends. Abdomen above same color as wings, the blue disappearing towards end, where it is replaced by deepening gray; underneath white, shading into yellowish gray at end.

Upperside of fore-wings a deep rich purplish blue, with some lustre; a large discoidal spot of the original ground color not inclining to blackish; the base very slightly dusted with blackish gray scales; the costa edged with blackish gray, at most linear over discoidal cell, and broadening towards apex, then extending down hind margin, of varying width, and covering one-third of marginal area; inner margin without any border. Hind wings: ground color same as fore-wings; inner margin light gray; costa and hind margin with a linear edge of blackish gray, inside of which, on the hind margin, is a fine thread-like line of white, broadening somewhat towards anal angle; inside of this is an almost imperceptible shading of dark blackish gray, bordering the ground color; two thread-like tails from termination of submedian nervure and first median nervule, the former more than thrice the length of the latter, blackish gray, very slightly edged and tipped with white; between these tails the dark shading inside of white line, broadens into a dark spot, and this broadening is repeated below the submedian nervure, but in less degree; at anal angle is an orange spot of small size, bordered at top with white, and bearing a few light blue scales at lower edge.

Beneath both wings are light gray with slight intermingling of whitish scales, and near base a slight shading of darker gray, which latter is wanting in some specimens. The costa of the fore-wing is edged with orange near base, about one-quarter the distance to apex; edge of hind margin with a delicate line of dark brownish gray; the dark edging which appears on upper side and occupies one-third of marginal area, manifests itself underneath by a very slight yellowish tinge, scarcely perceptible on the gray back-ground; on the inner edge of this, one-sixteenth inch from margin, is a transverse stripe of darkish gray elongated streaks extending from the costal border to the lower median nervule, bordered on each side with lighter gray, and always very indistinct, imperceptible on some specimens; inside of these and one-third the distance from margin to base is a series of more or less distinct transverse streaks extending from costa to lower median nervule, bordered with white or very light gray on the outside, and with orange on the inside, the orange being nearly absent at upper part near costa, but becoming more prominent below; this line is the prominent feature of the markings; within this and parallel to it is a line of very indistinct darkish transverse streaks extending to inner margin. On the edge of hind margin of hind wing is a delicate line of dark brownish gray, bordered on inner side with white, or very light gray; within this and one-sixteenth inch from margin is a line of nearly semicircular darkish gray lines extending from costa to inner margin, occasionally with a few orange scales enclosed and bordered with a little lightish gray; in the middle of the outer two-thirds of the wing is an irregular, but nearly straight series of transverse streaks of dark gray, forming a continuance of the streaks on fore-wing, but more strongly bordered with orange on inner side and white on outer side, and running parallel to the margin and terminating at inner margin about one-third the distance from anal angle to base; in the lower median interspace is a prominent orange spot, bordered above with a black line and enclosing at its base a nearly circular black spot, almost touching hind margin; in the next space below is a similar orange and black spot, less than half the size of the first and less distinctly marked, extending over the nervure to the anal angle; between these spots there is a sprinkling of light bluish scales, sometimes absent.

Female.—Head, antennæ and legs, same as male. Thorax and abdomen the same, except the blue of the male is replaced by the ground color of the wings. Ground color of wings a light grayish blue, near light slate color; some specimens being brighter and with considerable lustre; markings the same as male, except that the discoidal spot is wanting (although slightly apparent on some specimens), and the border of blackish gray on fore-wings, especially on hind margins, is more suffused, and covers one-half the area of the wing, extending from lower angle to a point on costa midway between apex and base. Beneath identical with ♂.

The specimens described were taken near San José del Cabo, at extreme end of the cape, in the month of August. They were

flitting about the flowering vines near sea-level. Described from sixteen males and seven females in my collection; taken by Mr. M. Abbot Frazar in 1888.

Lemonias maxima n. sp.

Hab.—Lower California. Expanse, 1.60 inches.

Front of head covered with white hairs, shading into blackish brown at summit; between head and thorax a "collar" of fulvous hairs. Palpi white, shading into blackish brown at ends. Antennæ blackish, with white annulations at base of each joint; club blackish, tipped with fulvous. Thorax above black, covered with blackish brown hairs; beneath white. Abdomen the same as thorax.

Fore-wings above fulvous and dark brown, with white spots; margins dark brown. Costa dark brown, with a linear fulvous dash near base. The dark brown along hind margins covers marginal area; near hind margin a row of seven white spots in interspaces, the upper two elongated, and all bordered with a soft dash of blackish brown on basal and outer sides, more apparent on basal side. Within these, and one-third distance from margin to base, a second row of seven white spots, larger than the first and cone-shaped (apex outward), bordered with black on basal side only, arranged, the upper three in a line at right angle to costa, the next three at right angle with inner margin and the lower one not in line, but placed nearer hind margin; the upper three are placed in the dark brown of marginal area, the lower four in the fulvous ground color. Above this row and nearly in costal edge, is a small white speck; at the end of cell a large white spot edged on each side with black; below this, extending from median nervule to submedian nervure, another large white spot, bordered with black on basal side only and irregular in shape; between these two, in notch formed by junction of median nervule and median nervure, a small blackish brown spot. In center of cell a round white spot bordered with black, and below this, below nervure, another white spot bordered with black; between these and base two slight dashes of white; nervures and nervules dark brown. Hind wings are marked the same, except that in second row of white spots the second two are much elongated, with basal ends joining and forming a V; also, on the costa over center of cell, a larger elongated white spot with no border.

Wings *beneath* much the same as above, except general coloring is much lighter and brighter and some lustre. Costa of fore-wings edged with white near base, broader at base, and tapering off to a point half way up the wing. White spots more suffused; these forming the V on the upper side of hind wings, blended in one irregular spot, and elongated or suffused enough to join with white spot in cell. Base of hind wings, and inner margin of same, generously dashed with silvery scales.

Described from two specimens in my collection, taken near San José del Cabo, Lower California, by Mr. M. Abbot Frazar.

A Remarkable new Hippoboscid from Mexico.

By C. H. TYLER TOWNSEND, Las Cruces, N. M.

[Read before the Entomological Society of Washington, Feb. 5, 1891.]

Recently Dr. Alfredo Duges, of Guanajuato, Mexico, sent me a unique of a species of Hippoboscidæ, with the request that I describe it. It had been taken on a bat, *Glossophaga soricina*, and was labeled *Trichobius* sp. This genus is queried in Scudder's "Nomenclator," being followed by the authority Gervais, also queried, the information having apparently been furnished by Mr. Bigot. I have searched in vain for any description or any mention of this genus in literature, except the remark by Mr. Bigot that he does not know the genus (Ann. Soc. Ent. Fr. 1885, p. 228), and I am forced to the conclusion that it has never been described, but is perhaps merely a name that has been perpetuated by labels in collections.

The above specimen has much the general appearance of *Strebla*, according to Wiedemann's and Macquart's figures of *S. vespertilionis*, and its similar habit would point to a near relationship with that genus. However, on Bigot's authority, *Strebla* has the claws of the tarsi simple, while our specimen has them bidentate, and further differs in having the first joint of all the tarsi very short, not elongate, not distinctly longer than the three following joints. Loew considered *Strebla* to belong to the Nycteribidæ on account of the first joint of the tarsi being elongate. The above specimen, moreover, has the eyes situated farther forward, near the middle of the head, instead of on the outer posterior angles. Yet, after all these differences, the venation agrees almost exactly with *Strebla*. If we consider with Loew that the latter genus belongs with the Nycteribidæ, then the present specimen is the first Hippoboscid known to be parasitic on bats. I am inclined to believe, however, that *Strebla* should, from its flattened head and the presence of wings, be included with the Hippoboscidæ, in spite of the fact that it is parasitic on bats. In this connection *S. avium* Macq., said by Loew to be synonymous with *S. vespertilionis*, is recorded as parasitic on pigeons and parrots in San Domingo. It is possible that this synonymy is in error, as the difference in habit would indicate two distinct forms. If such is the case, it might favor the separation of *Strebla* and allied genera, with *Trichobius*, under the family name Streblidæ, as already adopted by some authors.

However this may be, our specimen is remarkable as an undescribed form parasitic on bats, and in spite of differential characters, being probably nearly related to *Strebla*. As I can find no description of the genus *Trichobius*, I adopt the name and describe it as new.

TRICHOBIUS nov. gen.

Head more or less flattened, tubercular, or warted above; eyes situated nearer the middle than the back of the head, distinct; antennæ (?) distinct, apparently single jointed, with a terminal bristle; ocelli absent. Wings present, much longer than the abdomen, with six longitudinal and three transverse veins; first longitudinal vein ending in the front margin at about the outer two-thirds of the wing; second ending a little before the tip; third forking from the second near the base of the wing, and ending exactly at the wing tip; anterior transverse vein a little below (behind) the furcation of the second and third veins; the hindmost (innermost) cross-vein, which may be called the posterior, near the margin somewhat below the anterior and between the fifth and sixth veins; the other cross-vein, which may be called the apical, near the margin of the wing and between the fourth and fifth veins. Legs moderately short, somewhat stout; tarsi 5-jointed, the first joint of all pairs not perceptibly longer than each of the three following, very short; claws stout, two-toothed.

I take pleasure in naming this interesting species in honor of Dr. Alfredo Duges, of the Colegio del Estado, at Guanajnato.

Trichobius dugesii nov. sp.—Entirely tawny, or very pale reddish yellow. Head flattened, warty above, bristly below and at the vertex, rounded in outline, light fulvous; eyes silvery. Thorax deeper fulvous, bristly above; transverse suture distinct, also dorsal and humeral sutures. Abdomen very light fulvous, somewhat bristly on the sides and at the extremity. Legs fulvous, femora enlarged, very bristly above; last joint of all the tarsi as long as the four very short joints that precede it taken together; claws stout, black, two-toothed; tibiæ and tarsi short pubescent. Wings very light fulvous, with veins deeper fulvous; entire wing borders and veins bristly. Length of body, 1⅓ mm.; to tips of wings, 2½ mm.

One specimen, taken on *Glossophaga soricina*, Guanajuato, Mexico.

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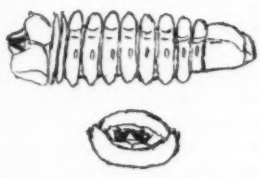
LARVA OF POLYCESTA ELATA Lec.

By G. W. J. ANGELL, N. Y. City.

Form elongate, flattened, dorsal and ventral surface slightly convex. Color white; segments thirteen, three thoracic and ten abdominal. First four abdominal segments equal in width, fifth to tenth gradually tapering. Last segment conical, truncate;

anal opening longitudinal. Prothorax large, narrowed in front; a fuscous cuneiform median sulcus extending from anterior margin to base. Spiracles nine; first large, fuscous and crescent shaped, situated in fold of the infero-lateral plate of mesothoracic segment at the juncture of dorsal plate. Spiracles second to ninth small, black or fuscous, situated on first eight abdominal segments near anterior margin of dorsal division, increasing in size from second to fifth, and decreasing from fifth to ninth. Head rather prominent, oval and convex, densely clothed with short fuscous hairs, a small punctiform fova on each side. Clypeus emarginate, with dark chitinous borders. Labrum coriaceous, fuscous at base, anterior margin slightly sinuate. Mandibles short, stout, cleft at tip, grooved at base; mentum coriaceous, emarginate and trisinuate. Labium membraneous, cordate. Paraglossæ prominent. Antennæ small, three-jointed, situated near base of mandibles. Length of full grown larvæ from two to two and one-half inches.



Breeds in post oak (*Quercus obtusiloba* Michx), cutting a grooved channel, slightly flattened, in general course parallel to and near the bark. The figures are life size, drawn from larvæ and pupa; raised from specimens received from Cypress Mills, Texas.

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SOME NEW AND BEAUTIFUL ÆGERIADÆ.

By Berthold Neumoegen, New York.

Although our fauna contains quite a number of Ægeriadæ, yet the group does not seem so prolific as its European relatives and the American insects, among whom there are some extremely beautiful and striking species, are counted as rarities up to this day. Since Mr. Hy. Edwards has sifted the various genera some

years ago, very few new comers have been announced. It therefore affords me great pleasure to be able to describe some prominent new species.

Trochilium californicum n. sp.—Palpi, head, collar, abdomen and legs, bright sulphur color. Antennæ light brown, thickening in centre and curling at tips, minutely pectinated. Thorax black, with light yellow borders. Primaries and secondaries vitreous; the costa, margins and nervures in both of them, as well as the discal spot of primaries, of light coffee brown. A bright yellow spot at base of primaries. Fringes light coffee brown. The first two segments of abdomen black, with a small yellow intersection of remaining segments a few slightly marked with black lines. Expanse of wings, 37 mm.; length of body, 15 mm.

Hab.—Central California. Type ♀, coll. B. Neumoegen.

This insect comes very near *T. pacificum* Hy. Edw., of which it seems to be the southern representative. It is easily distinguished by its antennæ and abdomen, besides being a smaller insect.

Trochilium minimum n. sp.—Antennæ black, pectinated. Palpi, head and collar yellow, the latter with a black border; patagiæ black, with yellow rims. Legs and abdomen yellow, the latter with black segmentary bands. Primaries and secondaries above vitreous; costæ, margins, discal spots on primaries, nervures, fringes, uniformly brown. Below, costa and discal spot of primaries, as well as anal margin of secondaries, have a yellow tinge. Expanse of wings, 29 mm.; length of body, 10 mm.

Hab.—Denver, Col. Type ♂, coll. B. Neumoegen.

Mr. D. Bruce caught this specimen, and informs me that its larva feeds on willow. He will probably be able to give a full description of the latter next season. This is the smallest North American true *Trochilium* so far known, and comes very near the European *Trochilium melanocephalum* Dalm.

Larunda palmii n. sp.—♂. Antennæ slightly pectinated. Palpi light red. Head black, collar yellow. Thorax black, overcast with red dust. Abdomen black, with first and fourth segments yellow, and red anal tuft. Below yellow, dusted with red. Legs brownish red; fringes black. Primaries slender, of reddish tinge, overcast with black, especially along costa, apical space and exterior margin. Secondaries about one-third larger than primaries; bright red. Basal half hyaline; black shades at apex, exterior margin and anal angle. Below, primaries black, shading into red at base, costa and along exterior margin. Secondaries red, hyaline; nervures and fringes black.

♀.—Antennæ slender, simple, much larger than the ♂, and wings not so disproportionate. Primaries and secondaries bright red; costa and

exterior margins prominently black, with black areas at apex and anal angle of secondaries. Below, a large part of inner space of primaries black; costa and margins bright red. Secondaries with black nervures. Expanse of wings, ♂, 25 mm.; ♀, 27 mm.; length of body, ♂ 9 mm.; ♀, 11 mm.

Hab.—South Arizona. Types, three males and one female; coll. Charles Palm and B. Neumoegen.

I take great pleasure in dedicating this beautiful insect to my friend, Mr. Charles Palm.

Albuna vitrina n. sp.—Head black; palpi and collar yellow. Thorax black. Antennæ brown, pectinated; caudal tuft narrow and black. Legs black, with yellow joints. Primaries and secondaries vitreous; prominent discal spot on primaries; costa, margins, discal spot and nervures brown, with a basal dot of same color on both wings. Below the same, except that nervures of costa and interior margin of primaries are pale yellow. Expanse of wings, 21 mm.; length of body, 10 mm.

Hab.—Ft. Calgary, N. W. Territory. Type ♂, coll. B. Neumoegen.

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NOTES ON THE EARLIER STAGES OF LEPISESIA FLAVOFASCIATA Barnst.

By Carl Braun, Bangor, Me.

(Continued from p. 89, Vol. II, No. 5.)

The freshly-laid egg resembles that of *Deilaph. chamænerii* very much; indeed, at the first sight, one who is acquainted with the ova of the Sphingidæ would take it to be nothing else, so striking is the resemblance in size, color and form. It is grass-green, with a smooth surface without granulations, in form spheroidal; diameter about one-third of an inch; they change before hatching, which takes place in from five to six days, to a yellowish white color. The young larva is three-sixteenths of an inch long, cylindrical, yellowish white with a large head, on each side of which is a large black eye-spot. The head resembles in comparison that of a pug dog. All the legs are tipped with black; the horn, which is short, stout and straight, is tipped with black. The first molt is made in seven days. The color changes now to bluish green, with a faint rosy, irregular longitudinal stripe on the back. The color on tip of horn is violet or black, it grows shorter at every change, till it finally is discarded at the third

molt, and only a shiny botton remains, which has a black rim. After the third molt the larva changes to light brown on sides and darker above, beneath rosy.

Of nine full grown larvæ the smallest measured 1.50 inches, the largest 1.68 inches. The color is of a uniform chocolate with a smooth surface, rosy beneath; legs tipped with black, two large black eye-spots, one on each side of head, which is large in comparison to body. The larva is stout and cylindrical; they feed from thirty-five to thirty-seven days on *Epilobium*. Pupation is on top of ground, among leaves, making an attempt at a light cocoon similar to the manner of *Hemaris thysbe* and *diffinis*.

The newly-made pupa is from seven-eighths to one inch long, stout, with prominent head of ochre yellow, which changes to chestnut in some and blackish brown in others. The cremaster is short and stout, with seven terminal hooks; in some, nine; in others, which are barbed, a silk thread attaches the hooks to the leaf cocoon. The habits of the larvæ are peculiar; they feed mostly at night, hiding on the under side of the leaf by day with head thrown to the right side of body; they are very restless when young, but soon become quiet after they have once settled on their food; they require a great deal of care, and need plenty of good air, and will not thrive in the glass jar, but will do well on the food put in water with a fine gauze-net over it in a shady place.

In the next paper I will attempt to describe the earlier stages of *Smerinthus cerisyi*.

ELEMENTARY ENTOMOLOGY.

LEPIDOPTERA.

The eggs of butterflies and moths are very carefully laid by the female insect on the appropriate plant on which the young caterpillars are destined to feed. They are unerring botanists in this respect, and never make a mistake, although they sometimes deposit eggs on plants the leaves or stems of which mingle with those on which the larvæ are to feed, and to which they soon find their way. The eggs are secured to the plants by a kind of glue or cement, which soon dries on exposure to the air, and is necessarily insoluble in water. They are laid singly or in varying

numbers. Sometimes they are all laid together and with much regularity on the leaf or around a twig; in this case the young larvæ are gregarious, and continue to feed in a community. Some species are gregarious, while the larvæ are young, but separate as they approach full growth and shift for themselves. The eggs, to a certain extent, mimic their surroundings to protect them from spiders and birds, and also from parasites that feed on them. The eggs of *Tolype velleda* are laid in strings, and are covered by hairs from the tuft at the end of the abdomen of the female moth and they closely resemble a hairy caterpillar.

"The eggs of butterflies are composed externally of a thin pellicle, separated into the base, walls and micropyle (apex of the egg and place where the male fertilizing cells enter)." The micropyle is made up of very small cells, and the walls are either smooth or variously sculptured. They vary considerably in shape, the principal varieties being globular, hemispherical, cone, or spindle shaped. White or green are the prevailing colors, although they may in some cases be yellow, red or brown. As the young caterpillar develops, its color may be seen through the thin and delicate walls of the shell, and this makes the egg appear black. The eggs of the Satyrinæ, Nymphalidæ and Papilionidæ are globular; in the Hesperidæ they are usually hemispherical, and in the Pierinæ they are spindle-shaped. The hatching period is a variable one, depending on temperature and exposure to the direct rays of the sun. It may be stated in a general way that they hatch in from three to twenty days, according to the species. Some species pass the Winter in the egg state, although the vast majority live during this period as chrysalids. The eggs of lepidoptera make very pretty and interesting objects for study under a magnifying-glass or microscope, and the different eggs of the different species bear the same relation to each other as do the different species in the perfect or imago state, and there is no doubt but what a system of classification could be formulated from these alone. The eggs of some species are very readily found, and the writer would urge the beginner to look on cabbage plants for the odd little spindle-shaped eggs of *Pieris rapæ*, and study them under a glass and see the micropyle, etc., and then place them in a box with the food-plant and rear the young larvæ to the perfect state, and thus gain a knowledge of the life-history of one species, which will be a good guide to the study

of all others. The eggs of *Danais archippus* are also readily found on the common silk or milk-weed (at the present time, May 10th). They are generally deposited on the underside of a leaf, and usually only one on a plant, and if the leaves are carefully examined the eggs are easily seen. They are conical in form and longitudinally ribbed, and between these run transverse ones. They are white when laid, but gradually turn yellow, and just before the young caterpillar is to emerge they change to a steel-gray color.

Another common species which is often found depositing its eggs on clover is *Colias philodice*. The egg of this species is in the shape of a spindle, and is attached to the plant by the point or one end. They are pale yellow when first laid, but soon change to a dark crimson, and are very interesting and pretty objects. They are also longitudinally ribbed and crossed by striæ. It would be well if egg hunting were considered more profitable by lepidopterists, as there is no doubt but what great expertness could be acquired in this line, and in this way much interesting knowledge would be gained, and when they were carried through to the perfect state nice, bright, and faultless specimens would be obtained.—ED.

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Pupa of Plastocerus Schaumii.

By FRANK E. BLAISDELL, M.D., Coronado, Cal.

Length 13.4 mm. Form elongate, curved, non-pubescent. Color of head, thorax and members, dirty white, with slight tinge of yellow; head and thorax opaque; members translucent; abdominal segments fulvous; central portions opaque; borders semi-transparent. Head deflexed and sunken, rather deeply into prothorax; front full, with two slight depressions separated by a median longitudinal ridge; denticulation of mandibles visible. Antennæ curved, thrown back so that middle of the convexity touches corresponding portion of the side of prothorax; apices near or resting against knees of anterior and posterior limbs, which approximate; pectinations directed inwards and backwards. Prothorax quadrate, flexed upon mesothorax; anterior angles overlapping the eyes, so as to cover the posterior half of their surface; posterior angles prominent, strongly divergent; anterior border bearing two spines, each being situated at the junction of the middle, with an outer third. Spines moderately divergent, basal halves straight, stout; apical portions slender, curved, chitinous; tips piceous. Mesonotal region depressed; elytral pads striate, much narrower than those of wings, scarcely reaching base of fourth abdominal segment. Metanotal region full, prominent; alar pads

with apices nearer median line and posterior to those of elytra, overlapping base of fourth abdominal segment; anterior pair limbs extending to base of second abdominal segment; median pair to opposite base of third, posterior pair to centre of sixth segment. Abdomen depressed, moderately curved upon itself; sides feebly convex. Segments nine, decreasing very slowly in width to fifth, then more rapidly; third, fourth, fifth and sixth, subequal; first shorter than second, which is shorter than third; eighth two-thirds as wide as third, shorter than seventh; ninth (anal) sculptured, partly sunken within eighth; from its dorsal surface and beneath posterior border of eighth two spines project, which are divergent, slightly recurved, chitinous. Sexual characters: male distinguished by the longer antennal pectinations. There is no appreciable difference between the eighth ventral segments in the two sexes.

Two specimens (♂ and ♀), Coronado, San Diego County, taken June 24th and July 1st, 1890, from 20.32 cm. below the surface of the soil. Position and pupal chamber had been destroyed before they were observed. From the appearance and position of the spines, I would infer that the pupa approaches the surface previous to the emergence of the imago. The adult insect is vividly portrayed at this stage, the quadrate pronotum suggests *P. frater*. One specimen was permitted to complete the transformations, the imago possessing a narrow prothorax and divergent posterior angles, characteristic of *Schaumii*. Six days previous to the appearance of the imago, the eyes and mandibles began to darken; prothorax darkened, but slightly. The hardening and darkening of the imaginal exoskeleton progressed very slowly; head and thorax had darkened by the fifth day; abdomen and elytra by the tenth day. The larva has not yet been recognized, but believe I possess it among several species of Elaterid larvæ.

Note on Sphenophorus minimus Hart.

By JOHN HAMILTON, M.D., Allegheny, Pa.

Examining some indeterminata taken here, which have been accumulating during several years, two specimens of *Sphenophorus minimus* Hart were discovered,—a species described lately by Mr. A. C. Hart in an article entitled, "The Corn Bill Bugs," in which he writes an excellent "Key to the Illinois Species" (*pertinax*, *robustus*, *costipennis*, *scoparius*, *sculptilis*, *cariosus*, *melanocephalus*, *Sayi*, *placidus*, *minimus* and *parvulus*). The article treats these species exhaustively, accompanied by three plates of well executed, enlarged figures, and is published

in the 16th Report of the State Entomologist of Illinois, being the 5th Report of S. A. Forbes for 1887–88, pp. 58–74, and plates I, II and III in part.

As this species is evidently local, and perhaps in many collections as an indeterminate, a presentation here of its distinguishing characters may be opportune, as comparatively few, to whom it might be useful, are likely to meet with the Report in which the description is published.

Sphenophorus minimus Hart.—Black, opaque when denuded, covered with a thin cinereous indument, argillaceous in the large punctures, except rostrum before antennæ; antennal club and basal portion of anterior femora internally, shining black; funicle and tarsi polished rufous. Rostrum, ♂, half as long as thorax, finely punctured for a short distance in front of the eyes and not deeply canaliculate, slightly arcuate, moderately compressed, scarcely wider to tip, base abruptly dilated over the scrobes and coarsely punctured, as is likewise the head; thorax longer than wide, nearly as wide as the elytra, moderately constricted at apex, base and apex behind constriction subequal, slightly widest before middle, behind which the sides are nearly parallel to base, which is roundly truncate each side; surface sparsely, irregularly variolato-punctate, with large shallow punctures; a small, median, smooth space, tending to obsolescence, or to project backwards as a fine line; anterior constriction with close-placed, discrete, shallow, variolate punctures to margin; scutellum elongate, narrow, not channeled, coated normally, but liable to abrasion. Elytra widest near base, gradually narrower to tip, finely striate, striæ each with a few distant, coarse, variolate punctures placed transversely in rows, the depressions around which make the surface uneven; intervals flat, equal, when denuded finely uniseriately punctured; pygidium shallowly punctured, pubescent with yellow bristles near tip, and on each side of apex with a small tuft. Underside with small, discrete, variolate punctures. The centre of all the punctures is luteous, which, contrasted with the cinereous surface, causes a spotted appearance. Length 5 mm.

This species belongs to the fifth section of Dr. Geo. H. Horn's synopsis (Proc. Am. Phil. Soc. Phil. xiii, 421), where it forms a third division under Section A, with this definition: *Thorax sparsely and irregularly punctured with large variolate punctures.* The above characters are derived from the two specimens in my collection. Mr. Hart's description was made from six males and five females, taken from floating driftwood and logs near water, at Urbana and Springfield, Ill. Length 5–6 mm. The smallest species in our fauna, Mr. Hart says. I have ten examples of *parvulus* from Illinois and Iowa, none of which exceed 5 mm. Measurements from anterior margin of thorax.

Preparatory stages of Spilosoma latipennis Stretch.

By HARRISON G. DYAR, New York City.

Egg.—Not observed; the eggs had been entirely devoured by the little larvæ, but, judging from the marks left on the leaf, were about .6 mm. in diameter.

First stage.—Not observed, but judging from the cast skins very similar to the second stage. The head was pale, the jaws brown, width somewhat over .3 mm.

Second stage.—The larvæ were found in this stage June 26th on an ash leaf, some twenty or thirty together. Head pale whitish, brownish on the clypeus and at vertex; ocelli black; width .4 mm. Body whitish, the warts concolorous and hardly distinguishable, bearing long whitish hairs. Length of larva 3 mm.

Third stage.—Head shiny, pale yellowish, faintly brownish at the vertex, ocelli black; jaws brown; width, .6 mm. Body as before, the warts small, concolorous, and bearing long blackish hairs.

Fourth stage.—Head as before, but not brownish at the vertex; width .9 mm. Body pale whitish, semi-transparent, the food showing through as a darker band. Hair rather long, whitish. Length 8 mm.

Fifth stage.—Head pale straw color, ocelli black, mouth brownish; width 1.1 mm. Body as before, the hair whitish and rather abundant.

Sixth stage.—As in the previous stage; width of head 1.3 mm. An orange subdorsal spot on joint 12, and a much fainter one on joint 3.

Seventh stage.—As before; width of head about 1.6 mm. (measurement not very accurate) A blackish subdorsal shade band and row of segmentary white dorsal spots faint at the extremities of the body. Hair rather long, mixed with black.

Eighth stage.—Head testaceous; jaws dark brown; ocelli black; width 2.1 mm. Body sordid greenish, mottled with black over the dorsum, a white dorsal and super-stigmatal line and pale stigmatal shade; spiracles white in a narrow black border; warts large, concolorous. Hair rather bristly, of irregular length, tawny brown, mixed with blackish; on joint 12 an orange spot surrounding the wart of row three. Thoracic feet testaceous.

Ninth stage.—Head brownish testaceous, mouth pale, ocelli and jaws black; width 2.3 mm. Body nearly black from the thick mottlings, the dorsal and super-stigmatal lines white; spiracles as before. Thoracic feet testaceous, abdominal feet black outwardly; a subdorsal orange spot before wart three on joint 12. Venter as black as the body above; warts large, pale yellowish. Hair foxy red, mixed with blackish.

Tenth stage.—Exactly as in the previous stage; width of the head 2.6 mm.

Eleventh stage.—Head testaceous brown, labrum, mouth and antennæ pale; width 3.1 mm. Body nearly black, with only the merest traces of the lines, the orange spots on joint 12 small; spiracles white. Thoracic feet brownish testaceous, the claspers of the abdominal feet pale; warts

pale; hair bristly, blackish, appearing foxy red next the body. The larva resembles the dark brown form of *Spilosoma virginica* in appearance.

Cocoon formed of the larval hairs held in place with silk as in other species of *Spilosoma*.

Pupa robust; nearly straight along the ventral line, slightly contracted along the ventral line, slightly contracted laterally behind the thorax. Abdomen large, rounded, the last segments tapering rapidly; cremaster flat, short and thick, furnished with many short knobbed spines. Thorax and cases creased; body coarsely, but densely punctured. Color pitchy black, shiny, the spiracles pale reddish.

The larva matured and began to form its cocoon September 3d, giving a larval period of over ten weeks. A male imago emerged in a warm room on March 12th, the next year.

It will be observed from the measurements given above that the widths of head follow the calculated series well, except the ninth stage, which is entirely superfluous, being inserted as a geometric mean between the eighth and tenth stages at a much higher ratio than any other stage, viz., calculated, .4, .5, .7, .9, 1.1, 1.3, 1.7, 2.1, 2.6, 3.2, ratio .80, giving but ten stages; found .3, .4, .6, .9, 1.1, 1.3, 1.6, 2.1, 2.3, 2.6, 3.1. The ratio between the 8th, 9th and 10th stages as found is .90, which, if kept up, would interpolate an extra stage between every one. Does this indicate that this species has normally but ten stages, and that the 9th as observed by me is unusual, being produced by scarcity of food or some other cause? It is to be noted that I did not find its markings to differ at all from those of the 10th stage.

Mr. Hulst, in the brief, but only published account of this species,* apparently found but six larval stages, but in the absence of any measurements it is useless to speculate on this. While I do not deny that the number of stages of this as well as other species, may be subject to variation under varying conditions of climate or food, or even under normal conditions, I hold that it is very far from having been proved. This will require accurate observation, in my opinion best accompanied by measurements, so that it can be seen where the variation, if any, occurred, as well as to serve as a check on the accuracy of the work.†

Food-plants.—The larvæ are probably omnivorous. Though found on ash, they seemed to prefer various herbaceous plants as they became older. Larvæ from Dutchess County, New York.

* Bull. Brooklyn Ent. Soc. viii, 120. † See further Psyche, v, 420.

Callidryas eubule in Missouri.

By R. R. ROWLEY, Curryville, Mo.

My acquaintance with *Callidryas eubule* began in the Summer of 1881. About the middle of August numbers of this splendid insect flitted about the streets of Louisiana, Mo., and I succeeded in taking a fine female on garden flowers. As I had never met the species before, and as all the specimens observed seemed to be moving in the same direction, as well as because of the sudden appearance and disappearance of so great a number of strange insects, the impression was left in my mind that they were inhabitants of another clime and were migrating.

A close watch through the Summers of 1882, 1883 and 1884, failed to discover a single specimen, and I had about abandoned all hope of adding to my meagre knowledge of this golden winged fairy, when returning from a day's tramp in the woods and fields, about the middle of the afternoon on the 17th of October, 1885, a fine male *eubule* sailed quickly across my path and settled for a moment on a tall Autumn flower just over the fence, almost beyond my reach. I collected myself quickly from the astonishment into which its sudden appearance had thrown me, and with the full length of my long net-pole, carefully and tenderly swept in the treasure. It was a bright, new specimen, and had doubtless flitted out into the sunshine for the first time that pleasant October day, as not a scale had been disturbed on its pretty wings. I had added a new and interesting chapter to the few facts gathered four years before, and had completely reversed my first impressions, being now satisfied that *eubule* dwelt here among us.

Through several succeeding Summers I made frequent trips to a bunch of *Cassia marilandica*, four miles away, but without finding an egg or a larva (I had found this clump of *Cassia* in chasing *Terias nicippe*), having learned from some entomological source that the larva of *eubule* feeds on *Senna*. Though I saw occasional imagos high on the wing, I learned nothing concerning its preparatory stages till the mid-summer of 1888. In that year *Terias lisa* was very abundant, and I had observed the females of that species depositing eggs on *Cassia chamæcrista*, a very abundant plant along the railroad and in adjoining fields near Curryville. In searching for the larvæ of this latter species, on the 4th of

August, I found seven fine *eubule* caterpillars. Later in the same month I obtained two more and captured a number of imagos.

Eubule is a very difficult butterfly to take, usually soaring beyond the reach of the net. I have taken it at mud and on red clover and "milk-weed" blossoms. It is wary and difficult to approach, settling on a flower but for a moment.

The grown larva is from 1¾ to 2 inches in length, and varies in color from a light green to a yellowish green, the entire body being covered with raised black points. There is a bright yellow longitudinal line or band below the spiracles, and on each segment there is a cross line or band of dark blue, preceded by a broken line of the same color extending downward to the longitudinal band. The light green larva wants these cross lines of blue, black segmental dashes, encircled by blue, either side of the yellow band taking their places. The underside of the body is light green. Head yellow, with a yellowish green face. Top of head set with raised black points. Feet yellow. None of the larvæ, before the fourth moult, show the cross blue bands. The young larva is light yellowish green with the yellow band and raised black points.

The pupa is 1½ inches long, a beautiful light green with a middorsal dark line and a light lateral line to each side. Wing cases very much humped, giving great breadth to the body. A long thorn like spine projects forward from the front of the head. Length of pupal period ten days. From the suspension of the larva to pupation is from twenty-six to twenty-eight hours.

Eubule seems to be a very delicate insect and difficult to rear in confinement. Out of nine larvæ handled, but two reached the imago, and these were about ready to suspend when found. The remaining seven died after suspending, either just before or just after pupation, the fine green of the new pupa soon becoming a dark putrid mass. Besides *eubule*, I have found feeding on *Cassia chamæcrista* the following species: *Terias lisa* and *Hyperchiria io.*

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No number of the NEWS will be published for July or August. These two months will be devoted to collecting by the subscribers and editorial committee.

This number of the NEWS contains 28 pages.

Notes and News.

ENTOMOLOGICAL GLEANINGS FROM ALL QUARTERS OF THE GLOBE.

[The Conductors of ENTOMOLOGICAL NEWS solicit, and will thankfully receive items of news, likely to interest its readers, from any source. The author's name will be given in each case for the information of cataloguers and bibliographers.]

In the future all papers received for publication in the News will be printed according to date of reception.

TO OUR PATRONS.—We want to increase the number of pages of ENTOMOLOGICAL NEWS and thereby augment its usefulness. To do this we must obtain a larger number of subscribers and thereby increase the income. There are doubtless many persons in this country who are interested in the study of Entomology, who have not yet heard of the existence of such a journal as ENTOMOLOGICAL NEWS, and who would probably become subscribers if their attention were called to it. The question is, how to reach these persons? It has been suggested that each subscriber make a list of the names and addresses of all whom he or she know are interested in the study and send it to the Editor, that a sample copy may be sent to all who are not already on the subscription-list, as an invitation to subscribe. This is a good suggestion, and we therefore ask our subscribers to assist us in this way. As another method of increasing the list, we have concluded to offer premiums for **new** subscribers, and call attention to this in a notice to be found on the second page of the cover of this number of the NEWS.

THE IDEAL entomological journal is one that covers the whole field, and each number should contain matter that will please all its readers. The dry scientific article should have a place along with that of a more popular and lighter vein. A journal, any number of which is made up largely of a dry synopsis of a single family in an order, is of value to only a very few readers, and the large remainder are disappointed and obliged to wait another month in hopes of finding something more tempting. The subscribers are made up of the professional entomologist, the systematist, the lover of nature in general, the amateur entomologist, those interested in Entomology in general, those interested in a single order, the student and the beginner, and the scope of a journal should be such and the paging sufficient in each number to supply readable matter for all. The lepidopterist, the hymenopterist, or the neuropterist, cares little for an article on some obscure family of beetles, and the coleopterist is equally dissatisfied with the same program in the other orders; therefore, the ideal journal is one that covers the subject from A to Z; or, to give an illustration, the intergrades may be filled in between to such articles as these, "Notes on the Genitalia of Gynandromorphous Macro-lepidoptera" and

"There was an old man in a tree
Who was horribly bored by a bee.
When asked 'Does it buzz?'
He replied, 'Yes, it does,
It's a regular brute of a bee.'"

ED.

Hetærius brunnipennis.—A recent addition to the collections at the Academy of Natural Sciences of Philadelphia is a hill of the mound-building ant, *Formica exsectoides*, from the vicinity of Altoona, Pa., containing a living colony of ants, measuring about three feet in diameter at the base and about two feet high. It is remarkable, considering the size, that over two hundred examples of *Hetærius brunnipennis* have been captured upon the exterior of the hill, seemingly creating a doubt as to whether it is really a colony of ants, or one of *Hetærius*. The first specimens were observed by Mr. W. J. Fox, on March 30, 1891, and since then the writer has taken small lots at intervals of three or four days, covering a period of six weeks, the specimens gradually getting less abundant. The lower half of one side of the mound, which is almost perpendicular, is completely honey-combed by exposed galleries, and out of these occasionally one or two *Hetærius* would suddenly make their appearance and roll to the bottom of the hill. Apparently the ants had carried these to the open ends of the galleries and unceremoniously tumbled them out. A great many times ants were observed emerging from the galleries with *Hetærius* in their jaws, which they would carry a short distance from the mound and drop, the ants returning without giving them any further attention. Nearly all the *Hetærius* that were seen in motion, were intent upon re-entering the hill, but were usually bottled before they could do so. Sometimes the *Hetærius*, when touched with a wisp of straw, would double up their members and drop, feigning death after the manner of other members of the family. At other times when touched they would display considerable activity, although awkward and unwieldy in appearance could run along quite rapidly. An examination of small heaps of dead ants in the extreme corners of the table upon which the mound has been placed, failed to discover the presence of any *Hetærius*. But one other coleopter was taken, a species of Pselaphidæ. A small dipter was noticed in numbers running about, continually in motion, but rarely taking wing. What the exact contents of the mound may be will remain in doubt, as all observations were necessarily made from the exterior, it being the intention to preserve the hill in its entirety.—CHAS. LIEBECK.

Excursion!—The entomologists of New York, Brooklyn, Newark, Philadelphia and localities near these cities are invited to attend the second annual field meeting to be held under the auspices of the entomological societies of these cities at Jamesburgh, N. J., on July 4th next. Jamesburgh is on the Amboy division of the Pennsylvania Railroad, and may be reached from New York, via. Monmouth Junction, 7.20 A.M.; Newark, 7.50 A.M.; Philadelphia, Broad Street, 6.50 A.M.; Camden, 7.00 A.M. Later trains leave New York via. Rahway and Philadelphia on the Long Branch division, but it is urged that the early train be used, as this will bring the party into Jamesburgh at the same time. All those desiring or expecting to attend will please notify one of the members of the committee, from whom also all further information can be obtained. The notification is important, in order that proper arrangements may be made at Jamesburgh.

Committee: C. P. Machesney, 65 Broadway, N. Y.; Dr. Henry Skinner, Amer. Ent. Soc., Logan Square, Philadelphia; Prof. J. B. Smith, New Brunswick, N. J.; H. W. Wenzel, 1115 Moore Street, Philadelphia, Pa.

OF *Amphion nessus*, Dr. Holland is recorded as saying (in Smith's "Sphingidæ of America North of Mexico," page 126) that "if flying in the middle of the day he 'has noticed that it always keeps in the shadow, or slyly hovers about among the thick masses of the *Syringa* blossoms in the deep umbrageous recesses, where it is not easily reached by the net of the collector.'" This is at variance with my observation. June 1, 1890, I collected some 18–19 imagines (imagos) in the hot sunshine, between 1 and 3 P.M., all feeding on the flowers of Blue Flag (*Iris versicolor*). My attention was called to the spot in a swampy meadow in one of our suburban districts of Westchester County by a few fine *Papilio turnus* hovering over the blue masses of *Iris*. The *A. nessus* had no opportunity to hide in trying to obtain nectar from the open flowers of Blue Flag, and was easily taken while exploring the tubular *Corolla* for dainties. Out of some twenty specimens I saw on two successive Sundays feeding on *Iris versicolor*, I only missed one. Neither did they exhibit any greater shyness than does *Hemaris thysbe* visiting the thistle flowers. Of course the large flowers of Blue Flag do not compare favorably with the thyrses of Lilac blossoms, many hundreds of which are closely crowded together, and a hawk moth in visiting its flowers, of necessity must frequently appear to be in the shadow of the larger flower truss of *Syringa vulgaris*, or *S. persica*. In July, 1889, I took a single specimen of *A. nessus* feeding on the flowers of a *Deutzia crenata*. I could not readily take it, because it so dodged in and out among the white flowers of the drooping *raceme*, that it was difficult to follow its rapid movements. Go to Blue Flag when in flower, and it is not difficult at all to take *A. nessus*.—R. KUNZE, M.D.

IN some years' collecting in Essex County, N. J., I have always noted, with more or less interest, the small colonies of one of our common "lady birds," *Megilla maculata*, which hibernate under leaves, stones, etc., through the Winter. These colonies have always ranged from 100 to 200 individuals with occasionally one of some 500. On March 6th I found one of unusual size, and being curious as to the number it contained, I collected the entire colony with the help of my brother. It numbered 1412. They were on the south side of a chestnut tree under a small cluster of old chestnut burs. I thought this large number collecting, whether for social or sexual purposes (and I am inclined to think the latter has a good deal to do with it), might be interesting to some of the readers of ENTOMOLOGICAL NEWS who are coleopterists.—RALPH HOPPING.

A WORD about *Argynnis idalia*, which are with difficulty taken even when feeding on their favorite swamp milkweed (*Aslepias incarnata*). Not far from New Rochelle, Westchester County, N. Y., in a wet swamp, I obtain some specimens every season. In July, 1890, when this milkweed was in full flower, I went there as usual with my largest net, fifteen inches in diameter, with which I can capture twice the number than with an

eleven inch affair. After securing a specimen or two it turned to a drizzling rain. Nothing daunted, my feet being wet already, I tramped hither and thither through the long, wet grass and tall weeds, every now and then starting up an *Arg. idalia* much in the same manner that a hunter flushes woodcock in a swamp. The *A. idalia* were thoroughly wetted like myself and never flew far away, so that I could easily mark the spot, walk up stealthily and readily take my prize.—RICHARD E. KUNZE, M.D.

Mr. EDITOR.—You refer in the May number of your esteemed paper to a noctua caught by Mr. J. T. Mason, of Houston, Texas. I identified this insect last Summer as belonging to the genus *Euglyphia*. Its correct name is *Euglyphia fastuosa* Guén. (Guén. No. 186. Herr.-Sch. Cuba, 1868, p. 9), and it is fully described in Dr. J. Gundlach's "Contribucion a la Entom. Cubana," p. 304. This insect is likewise found in the West Indies and South America. In Cuba its larva feeds on malva-té (*Cœchorus silignosus*). It transforms above ground, making a sort of nest from little bits of grasses. Prof. J. B. Smith, in his new check list, will assign it to the genus *Noropsis* Guén., "of which," as he says, "it is the type, *Euglyphia* being restricted to other species by him (Guén.)."—NEUMOEGEN.

The synonymy of the moth is *hieroglyphica* Cramer, = *elegans* Hüb., = *fastuosa* Guénee.—ED.

THE LAST of August, 1890, I took in southern Michigan a good female of *Apatura clyton*. I do not know that it has been reported before from Michigan. The fact that it is the only one I have ever taken, and that I took it on ground that I have worked over for several years, made it quite noticable to me. I had gathered together a lot of ripe pairs, put them in a pile, and had crushed them as a bait for Graptas and *Limenitis ursula*. This *Apatura* was taken on the crushed pears with those mentioned.—I. N. MITCHELL, Fond du Lac, Wis.

A SAVANT'S HORRIBLE DEATH.—Algiers, May 18th. The French savant, M. Kunckel Herculais, the president of the ethnological society, who was employed on the government mission of investigating the locust plague in this province, has met with a horrible death. While examining a deposit of locusts' eggs at the village of Sidieral he was overcome with fatigue and the heat, and fell asleep on the ground. While sleeping he was attacked by a swarm of locusts. On awakening he struggled desperately to escape from the flood. He set fire to the insect-laden bushes near him, but all his efforts proved ineffectual, and, when finally the locusts left the spot, his skeleton was found, together with his hair, beard and necktie. The rest of him had been entirely devoured. Mr. Herculais was a member of the French Academy, and the author of several valuable works on insects.

Psyche confederata G. and R. has been quite abundant for two years past on the grounds of the Ohio State University, Columbus. I infer, from references made to it by Mr. H. G. Hubbard, in "Insects Affecting the Orange," 1885, that it is not known to be widely distributed or common elsewhere.—D. S. KELLICOTT, Columbus, Ohio.

THE LAST SEASON was not a very propitious one for collecting lepidoptera in this country, and most of my collectors did only fairly well. Mr. Bruce succeeded in obtaining some of the rarer Arctians, Cossidæ and Bombycidæ in Colorado. Mr. Bean, of Laggan, raised the beautiful *Colias elis* ♂ and ♀, *Antarctia Beanii* Neumg., etc., from the larvæ, and captured a new *Chionobas*, coming very near *subhyalina* Curt. My collector on the upper Indian River, Fla., caught several specimens of the handsome sphinx *Dilophonota caicus* Cr., which will have to be added to our fauna. So far the latter insect has only been obtained in Hayti, Honduras and some parts of South America.—B. NEUMOEGEN.

MESSRS. Fox and Johnson arrived in Philadelphia, Thursday, May 14th, after a successful collecting tour in Jamaica. They saw one specimen of *Papilio homerus*, but did not succeed in capturing it.

Prof. I. N. MITCHELL reports *Vanessa californica* as having been taken at Fond du Lac, Wis.

Mr. H. F. WICKHAM left May 9th for a collecting tour in Alaska. He expects to be gone until September.

Identification of Insects (Imagos) for Subscribers.

Specimens will be named under the following conditions: 1st, The number of specimens to be unlimited for each sending; 2d, The sender to pay all expenses of transportation and the insects to become the property of the American Entomological Society; 3d, Each specimen must have a number attached so that the identification may be announced accordingly. Address all packages to ENTOMOLOGICAL NEWS, Academy Natural Sciences, Logan Square, Philadelphia, Pa.

Insects have been named for A. F. Winn, W. C. Wood, F. H. Hillman, T. W. Glover and E. B. Southwick.

Entomological Literature.

TRANSACTIONS OF THE ENTOMOLOGICAL SOCIETY OF LONDON, 1891, pt. 1, 178 pp. 9 plates.—Notes on the Genitalia of a Gynandromorphous *Eronia hippia*, by Geo. T. Baker. A monograph of British Braconidæ, pt. 4, by Rev. Thomas A. Marshall. African Micro-Lepidoptera, by Right Hon. Lord Walsingham. New species of moths from southern India, by Col. Chas. Swinhoe. Conspicuous effects on the Markings and Coloring of Lepidoptera caused by exposure of the pupa to different temperature conditions, by Fred. Merrifield. On some recent additions to the list of South African butterflies, by Roland Trimen.

THE BUTTERFLIES OF NORTH AMERICA, by W. H. Edwards; third series, pt. 11.—This contains the life-histories of *Apatura flora*, *Satyrus meadii* and *Chionobas chryxus*, illustrating eggs, larva, chrysalids and imagos. Mr. Edwards is to be congratulated in having reared *C. chryxus* successfully, and giving such a beautiful illustration of the life-history of a genus which so little had been known of the earlier stages previous to the publication of his work.

PROCEEDINGS OF THE ZOOLOGICAL SOCIETY OF LONDON, 1890, pt. 4.—On the Heteromerous Coleoptera collected by Mr. W. Bonny in the Aruwimi Valley, by G. C. Champion.

WEST AMERICAN SCIENTIST, January, 1891.—A new Rhaphiomidas from California, *R. acton*, by D. W. Coquillett.

PROCEEDINGS OF THE LINNEAN SOCIETY OF NEW SOUTH WALES, 2d series, vol. v, pt. 1st.—Contributions towards a knowledge of the Coleoptera of Australia, No. 6. New Lamellicornia and Longicornia, by A. Sidney Oliff. A revision of the Australian genus *Ogyris*, with description of a new species, by B. W. H. Miskin. Descriptions of hitherto undescribed Australian Lepidoptera (Rhopal.), principally Lycænidæ, by W. H. Miskin. Diptera of Australia, pt. 8, the Tipulidæ longipalpi, by Fred. A. A. Skuse. Note on *Danais petilia* Stoll., by H. H. Miskin. Notes on Australian Coleoptera, with descriptions of new species, pt. 6, by Rev. T. Blackburn. Studies in Australian Entomology. No. 3.—On *Promecoderus* and allied genera (Carabidæ), by T. G. Sloane.

BIOLOGIA CENTRALI-AMERICANA.—Coleoptera, vol. ii, part 1, by D. Sharp; vol. iv, pt. 3, by D. Sharp; vol. vi, p. 1; supplement, by M. Jacoby; vol. vii, by H. S. Gorham. Hymenoptera, vl. ii, by P. Cameron. Lepidoptera-Rhopalocera, vol. ii, by T. D. Godman and O. Salvin. Lepidoptera-Heterocera, by H. Druce.

DREISSIGSTER BERICHT DES NATURWISSENSCHAFTLICHEN VEREINS FUR SCHWABEN UND NEUBURG (a. V.), 1890.—The macrolepidoptera of the vicinity of Kempten and Algaus: A contribution to the Bavarian lepidopterous fauna, by O. von Kolb, 2d edition.

LE NATURALISTE, April 1, 1891.—Diagnoses of new Lepidoptera* by P. Dognin.

MATERIAUX POUR LA FAUNE ENTOMOLOGIQUE DES FLANDRES COLEOPTERES, 4me Centurie, by A. P. de Borre.

MONITORE ZOOLOGICO ITALIANO (Florence), II, No. 3.—On pseudoparasitism of the larva of the Mosquito (*Culex pipiens*), by R. Blanchard.

BIOLOGISCHES CENTRALBLATT, March 15, 1891.—The glands of the first abdominal segment of the insect embryo, by J. Carriere.

NOTES FROM THE LEYDEN MUSEUM, xii, No. 4, October, 1890.—Description of two new species of the genus *Poteriophorus* Sch., of the family Curculionidæ,* by W. Roelofs. Description of a new species of Elateridæ,* by E. Candéze. Three new Malayan Longicorn Coleoptera,* by C. Ritsema Cz.

JOURNAL DE L'ANATOMIE ET DE LA PHYSIOLOGIE NORMALES ET PATHOLOGIQUES DE L'HOMME ET DES ANIMAUX, xxvii, No. 1, Paris, 1891.—Abstract genealogy of Arthropoda, by Dr. L. A. Segond.

BIOLOGISCHES CENTRALBLATT, April 1, 1891.—On the biology of Ants, by C. Emery.

* Contains new species other than North American.

COMPTE RENDU. SOCIETE ENTOMOLOGIQUE DE BELGIQUE, March 7, 1891.—Description of new Hesperidæ,* by P. Mabille; *Odina*, *Nyctus* n. gen.; *Carystus abalus* n. sp. Merida, Colombia. Descriptions of Coleoptera of the mountains of Kashmir (continued), by L. Fairmaire; *Helcophorus Saloninus* n. gen. Description of a new species of the genus *Lathridius* Herbst., M.-J. Belon. On some Histeridæ collected in Bengal,* by G. Lewis. Dascillidæ and Malacoderma of western Bengal,* by M. J. Bourgeois. Note on the Hemiptera of Bengal,* by L. Lethierry. Entomological miscellanies*: I. Phytophaga of the Isle of Java; II. New, or little-known Phytophaga,* by A. Duvivier; *Sikkimia* n. gen. New Buprestidæ and synonymic remarks,* by C. Kerremans.

ZOOLOGISCHER ANZEIGER, April 6, 1891.—On the development of the central nerve system in *Blatta germanica*, by N. Cholodkovsky. On the development of the wing nerves of butterflies, by Dr. E. Haase.

ATTI DEL REALE ISTITUTO VENETO DI SCIENZE, LETTERE ED ARTI, xxxviii, Venize, 1889-90.—Revision of the Italian Acarofauna: family Ixodini, by G. Canestrini; 3 plates; *Herpetobia* n. gen.

ENTOMOLOGISCHE NACHRICHTEN, xvii, No. 7, April, 1891.—On the Orthopterous family of the Prochilidæ,* by Dr. F. Karsch; 4 figs., *Simodera*, *Mastighapha*, *Polycleptis* n. gen. On the fauna of Mecklenburg (Coleoptera, Lepidoptera), by H. Brauns. Miscellanea coleopterologica,* by C. Schaufuss.

IL NATURALISTA SICILIANO, x, No. 4 (Palermo), 1891.—Note on the genus *Reicheia* Saulcy, and on a species of *Dichropterus* Ehlers,* by F. Baudi. Luminous insects, by L. Failla-Tedaldi.

LE NATURALISTE (Paris), April 15, 1891.—*Colias Wiskotti* Staudinger, and its different varieties, by M. Austaut. Description of new Micro-Lepidoptera,* by P. Chretien.

TERMESZETRAJZI FUSETEK (Budapest), xiii, Nos. 2 and 3, December, 1890.—First addition to the Monographia Chrysididarum Orbis Terrarum universi,* by A. Mocsary; Adelphinæ n. subfam., *Adelphe* n. gen., *A. mexicana* n. sp., Orizaba.

BULLETINO DELLA SOCIETA ENTOMOLOGICA ITALIANA, xxii, Nos. 3 and 4, 1891.—New species of *Culex* from Zanzibar, by Dr. E. Ficalbi. New apparatus for the study of Entomology, by C. Emery. A zoological excursion to the Friulian Lakes, and The marriages of butterflies, by Dr. A. Senna. Diagnoses of new Arthropoda of Sardinia,* by A. Costa. Studies on Messinese Entomology: the Cleonidæ, by F. Vitale. On the odorant organs of the Lepidoptera of the Indo-Australian region after the studies of Dr. Erich Haase, by F. Plateau. Materials for a catalogue of the Italian Tenthredinidæ, by A. Berlese. Genesis of the silk worm, by N. G. Mukerji. On the pretended parasitism of the larva of *Culex pipiens*, by E. Ficalbi. Italian Entomological Literature; Entomological Bibliography, etc.

* Contains new species other than North American.

SITZUNGSBERICHTE, D. KAIS. AKADEMIE DER WISSENCHAFTEN (Wien) MATHEMATISCH-NATURWISSENSCHAFTLICHE CLASSE, xcviii, heft 4-7, '89, xcix, heft 1-3, 1890.—Monograph of the digging wasps allied to *Nysson* and *Bembex*,* by A. Handlirsch, parts iv and v, 3 plates; *Bembidula diodonta*, Orizaba, *B. insidiatrix*, Ky., Tex., *B. capnoptera*, id. and Ga., *B. fodiens*, Ga., Tex., *Stenolia scolopacea*, Nev., Cal., *S. tibialis*, id., *Monedula vivida*, Mex., *M. dives*, id., *M. serrata*, Ga., *M. inermis*, Ga., *M. mammillata*, Ga., Va., Da.; *M. minutula*, Tex., *M. pulla*, Cal., new North American species.

DENKSCHRIFTEN of the preceding, lvi, 1889.—Comparative studies on the embryology of insects, and especially Muscidæ, by V. Graber, plates and figures.

ENTOMOLOGISCHE NACHRICHTEN, xvii, No. 8.—April, 1891.—A new contribution to the knowledge of the indigenous Coleoptera of Bucovina, by C. v. Hormuzaki. On the fauna of Mecklenburg (Hymenoptera), by H. Brauns. Physiological notes (Coleoptera, Hymenoptera), by C. Verhoeff.

SPECIES DES HYMENOPTERES D'EUROPE ET D'ALGERIE, fondé par Edmond André et continue sous la direction scientifique de Ernest André, 38e fascicule, Gray, April 1, 1891.—Braconidæ (continued), by Rev. T. A. Marshall.

COMTE RENDU. SOCIETE ENTOMOLOGIQUE DE BELGIQUE, April 5, 1891. —Descriptions of new Hesperidæ (third part),* by P. Mabille; *Pamphila subsordida*, Honduras; *P. puxillius*, Mexico; *P. asema*, Honduras; *P. parilis*, id. *P. binaria*, Merida; *P. portensis*, Porto Rico; n. sp. from North America. Coleoptera from the interior of China* (seventh part), by L. Fairmaire; *Hypochrus*, *Hecatomnus*, *Cyrebion*, *Ariarathus*, *Lagriogonia*, n. gen. Provisional list of the Coleoptera Heteromera of Belgium, by L. Coucke.

LE NATURALISTE (Paris), May 1, 1891.—Insects injurious to the maritime pines imported into the bay of the Somme, by M. Decaux. Diagnoses of some Heterocera from Venezuela, by P. Dognin.

L'AUXILIARE DE L'APICULTEUR (Amiens), April, 1891.—Raising bees under the influence of violet light, by A. Teynac. General notions on the nature and physiology of the Bee, by G. Ulivi.

Doings of Societies.

A REGULAR MEETING OF THE ENTOMOLOGICAL SECTION OF THE ACADEMY OF NATURAL SCIENCES was held Wednesday, April 23d, Dr. Horn, Director, presiding. Members present: Martindale, Skinner. Associates: Westcott, Nell, Calvert and Dr. Castle. Letters were read from

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Dr. Henri de Sassure and the Imperial Academy Leopoldino-Caroline. Mr. Martindale reported the capture of butterflies and moths. A letter was read from Mr. W. J. Fox, dated Kingston, Jamaica, April 15th, in which he said he and his companion, Mr. C. W. Johnson, were having fair success in collecting insects on the island. They expected to go to Port Antonio and remain there until May 7th, when they would leave for home.

HENRY SKINNER,
Recorder.

THE ENTOMOLOGICAL SOCIETY OF WASHINGTON.—December 4, 1890. The corresponding secretary read a paper by Mr. P. R. Uhler entitled, "Observations on some remarkable forms of Capsidæ," in which were described two new genera, *Heidemannia* and *Peritropius*, represented by one species each, viz., *H. cixiiformis* and *P. saldæformis*. The paper also contained a note on the recent discovery by Mr. Heidemann, in the District, of one of Say's long-lost species, *Cylaphus tenuicornis*.

Mr. Howard read a paper on the "Parasites of the Hemerobiinæ," in which, after dwelling on the numerous protective characters of this subfamily of neuropterous insects, he spoke of the known hymenopterous parasites, and added the encyrtid genus *Isodromus* as the only known primary parasite in the country with the single exception of the egg parasite mentioned by him on page 10, Vol. I, of the society's proceedings. Several secondary parasites were mentioned, and a list of the European parasites and hyper-parasites was given.

Mr. Marlatt presented a note in which he proposed the specific name *unicolor* for a species of *Monoctenus*, the larva of which feeds on the Red Cedar. This Saw-fly had been described by him as *M. juniperi* (see Trans. Kans. Acad. of Sciences, Vol. X, p. 82), which name was preoccupied by an European species of the genus.

Mr. Banks read a paper on *Thalmia parietalis* Hentz, a spider which he had taken in Texas, and which had been lost since Hentz's time. In studying this species in connection with the Pholcidæ, Scytodidæ, Filistatidæ, Urocteridæ, Euyoidæ and Hersilidæ, he reached the conclusion that these spiders are closely related, and ought to be included in one group of family importance for which he proposes Duges' name Micrognathes changed to Micrognathidæ.

Mr. Townsend read some notes on Tachinidæ *sens. lat.*, synonymical and critical, with particular reference to the confusion of the sexes by early describers. A good number of species were noticed and several new ones were described.

Prof. Riley read and commented on letters from Mr. Wm. H. Ashmead, now studying in Berlin, and Mr. S. S. Rathvon, of Lancaster, Pa. He then read a note on an exotic roach (*Ponchlora viridis?*) which he had recently received from Dr. C. F. Gissler, of Brooklyn, N. Y. The remarkable feature was that the roach was certainly viviparous, a habit believed not to have been hitherto recorded of any species of the family Blattidæ. Figures of the parent roach, and of its young greatly enlarged,

were shown. Prof. Riley gave an account also of his additional study of Platypsyllus, in which he mentioned the discovery of a large number of insects, mites and centipedes, which are associated with the beaver either accidentally or as parasites or guests. He also mentioned the undetermined larva described by Mrs. Julia P. Ballard in the October number of ENTOMOLOGICAL NEWS, p. 124, and said that he had no difficulty in recognizing the larva as that of *Citheronia regalis** G. and R. He then called attention to an interesting paper read by Prof. Forbes at the recent meeting of the Association of Economic Entomologists, relating to the periods of transformation, and to the specific characters of Lachnosterna larva. These matters were discussed at considerable length by Prof. Riley, and two new parasites of Lachnosterna were added to those hitherto known.

Mr. Schwarz presented a note "On the feeding habits of Empidæ," in which he described the habits in this regard of a species of *Syneches simplex?* which was very abundant in the mountains at Ft. Pendleton, Md., during the first part of July. Their vertical position in flight and peculiar method of holding their prey and of hanging by one fore-leg while devouring it, were described. He also discussed the recent publication by Ed. Fleutian and Sallé on the Coleoptera from the island of Guadalupe, West Indies (Ann. Soc. Ent. de France, 1889, 1890). The relation of the species enumerated to the fauna of the United States was particularly dwelt upon.

C. L. MARLATT,
Recording Secretary.

OBITUARY

Prof. JOSEPH LEIDY, M.D., died April 30, 1891, aged 68 years. Dr. Leidy always took a warm interest in Entomology, although his writings on the subject were principally connected with the anatomy of insects. Among his very first contributions to science was an article on the Mechanism which Closes the Membranous Wings of the genus *Locusta* (Proc. Acad. Nat. Sci. 1846). Then came the important contributions, "History and Anatomy of the Hemipterous genus *Belostoma* (1847)," and the "Internal Anatomy of *Corydalis cornutus* in its three stages of existence (1848)." He collected micro-lepidoptera in his earlier years, and there are many specimens in the collection of the Entomological Section of the Academy of Natural Sciences, which he presented. Dr. Leidy was elected a member of the American Entomological Society, Feb. 8, 1864.

ENTOMOLOGICAL NEWS for May was mailed April 27, 1891.

C. sepulcralis?—ED.